

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF:

Art Unit: 1616

Masanao Kamoi, et al.

APPLICATION NO: 10/553,214

EXAMINER: Ali Soroush

FILED: October 13, 2005

FOR: ORGANOPOLYSILOXANE HAIR TREATMENT AGENT AND HAIR  
COSMETIC CONTAINING THE TREATMENT AGENT

**DECLARATION UNDER 37 C.F.R. § 1.132**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

Sir:

I, Masanao Kamei, a citizen of Japan, residing at Annaka, Gunma-ken, Japan, hereby declare and state as follows:

I graduated from Saitama University Graduate School, Faculty of Science, Applied Chemistry Department, in 1987 to get a M.S. degree. After the graduation, I joined Shin-Etsu Chemical Co., Ltd., and I have been working on silicone in the Silicone-Electronics Materials Research Center. I am a chief scientist in the Development Section No. 1.

I am an inventor of the present U.S. Patent application No. 10/553,214, filed on October 13, 2005, entitled "ORGANOPOLYSILOXANE HAIR TREATMENT AGENT AND HAIR COSMETIC CONTAINING THE TREATMENT AGENT".

The following experiments were carried out by me to show that the present invention differs from the invention of Tetsuo Nakanishi (EP 1065234), hereinafter referred to as Tetsuo, and that the superior advantages obtainable from the present invention compared with that of Tetsuo come from the difference.

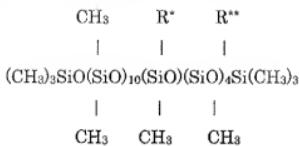
Experimental

In order to show that in the fine-graded titanium dioxide powder treated with Silicone 1 that was prepared in Example 5 of Tetsuo which contains the fine-graded

titanium dioxide and the Silicone 1 in a weight ratio of 98:2, a dealcoholization reaction has occurred between the alkoxy groups contained in the Silicone 1 and the OH groups on the surface of the titanium dioxide, and thus structure of the Silicone 1 has been changed and substantially no free Silicone 1 remained in the titanium dioxide treated with Silicone 1, I conducted the following experiment.

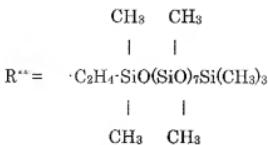
### 1. Material used

The fine-graded titanium dioxide powder (average diameter of 15nm, MT-100TV, ex TAYKA CO.) treated with a silicone represented by the following average formula:



wherein,

$$\text{R}^* = \text{C}_2\text{H}_4\text{Si}(\text{OEt})_3 \quad \text{and}$$



in a weight ratio of 98:2 was used, which corresponds to the titanium dioxide powder treated with Silicone 1 prepared in Example 5 of Tetsuo.

### 2. Procedure and Measurement

To 20g of the titanium dioxide powder treated with the silicone (Silicone 1 of Tetsuo) as described above, 40g of toluene which is excellent in silicone-dissolving property was added, and the resulting mixture was subjected to ultrasonic dispersion and filtration. Any silicone that has not reacted with the titanium dioxide powder will be extracted with toluene and contained in a filtrate (toluene phase). The filtrate was heated to 100°C under reduced pressure to distil away any remaining toluene. The amount of the remaining unreacted silicone in the toluene phase was measured to be 0.03g, which corresponds to 7.5% by weight of the initial amount of the silicone (20g x 2/100 = 0.4g).

3. Conclusion:

It was shown from the above measurement that 92.5% by weight of the silicone used for treating the titanium dioxide powder has reacted with the titanium dioxide powder and only 7.5% by weight of silicone remained in free form.

4. Evaluation:

The cosmetic material containing a silicone-treated powder according to Tetsuka does not substantially contain silicones or organopolysiloxanes in a free form whereas the hair treatment composition used in the present invention contains an organopolysiloxane in a free form. The superior effects of Hair Treatment Agent (A) according to the present invention compared with Hair Treatment Agent (B) according to Tetsuka that are shown in Table 2 contained in the Declaration dated August 22, 2008 filed for the present application are believed to come from the presence of an organopolysiloxane in a free form in the Hair Treatment Agent (A).

I, the undersigned petitioner, declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001, of title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date: October 20, 2009

Masanao Kamei  
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